## AMENDMENTS TO THE CLAIMS

**Listing of claims:**

This listing of claims replaces all prior versions and listings of claims in the application.

Claim 1 (Currently Amended): A spin injection device comprising ~~characterized in that it comprises~~

a spin injection part having a spin polarizing part and an injection junction part,

and SyAF having a first magnetic layer and a second magnetic layer having different magnitudes of magnetization, and magnetically coupled together antiparallel to each other via a nonmagnetic layer, wherein:

said first magnetic layer of SyAF and said injection junction part are bonded, and

a spin polarization electron is injected from said spin injection part by flowing electric current between said spin polarizing part and said second magnetic layer, and magnetization of said first and second magnetic layers is reversed while maintained in antiparallel state without applying an external magnetic field.

Claim 2 (Original): The spin injection device as set forth in claim 1, characterized in that the injection junction part of said spin injection part is either a nonmagnetic conductive layer or a nonmagnetic insulating layer.

Claim 3 (Original): The spin injection device as set forth in claim 1 or claim 2, characterized in that said spin polarization electron is capable of spin conservation conduction or tunnel junction at the injection junction part of said spin injection part.

Claim 4 (Previously Presented): The spin injection device as set forth in claim 1 or claim 2, characterized in that the spin polarization part of said spin injection part is a ferromagnetic layer.

Claim 5 (Previously Presented): The spin injection device as set forth in claim 1 or claim 2, characterized in that the spin polarization part of said spin injection part is provided in contact with an antiferromagnetic layer that fixes the spin of a ferromagnetic layer.

Claim 6 (Previously Presented): The spin injection device as set forth in claim 1 or claim 2, characterized in that the aspect ratio of the first and the second magnetic layers of SyAF in contact with the injection junction part of said spin injection parts is less than 2.

Claim 7 (Currently Amended): A spin injection magnetic apparatus comprising ~~characterized in that it comprises~~ a free layer having a first magnetic layer and a second magnetic layer coupled together magnetically antiparallel to each other via a nonmagnetic layer, and in which magnitudes of magnetization are different, and the magnetization of said first magnetic

layer and said second magnetic layer is capable of magnetization reversal while maintaining the antiparallel state, and

a ferromagnetic fixed layer tunnel-junctioned with the first magnetic layer of said free layer via an insulating layer, wherein:

said ferromagnetic fixed layer and said free layer are made to be a ferromagnetic spin tunnel junction, and

the magnetization of said first and second magnetic layers is reversed by flowing electric current between said second magnetic layer of the free layer and said ferromagnetic fixed layer while maintained in an antiparallel state without applying an external magnetic field.

Claim 8 (Original): The spin injection magnetic apparatus as set forth in claim 7, characterized in that it is provided with, in addition to the above-mentioned aspects, a spin injection part having an injection junction part connected to said free layer and a spin polarization part.

Claim 9 (Original): The spin injection magnetic apparatus as set forth in claim 8, characterized in that the injection junction part of said spin injection part is either a nonmagnetic conductive layer or a nonmagnetic insulating layer.

Claim 10 (Previously Presented): The spin injection magnetic apparatus as set forth in claim 8 or claim 9, characterized in that a spin polarization electron is capable of spin

conservation conduction or tunnel junction at the injection junction part of said spin injection part.

Claim 11 (Previously Presented): The spin injection magnetic apparatus as set forth in claim 8 or claim 9, characterized in that the spin polarization part of said spin injection part is a ferromagnetic layer.

Claim 12 (Previously Presented): The spin injection magnetic apparatus as set forth in claim 8 or claim 9, characterized in that the spin polarization part of said spin injection part is provided in contact with an antiferromagnetic layer that fixes the spin of a ferromagnetic layer.

Claim 13 (Previously Presented): The spin injection magnetic apparatus as set forth in any one of claims 7, 8 or 9, characterized in that the aspect ratio of the first and the second magnetic layers of the free layer in contact with the injection junction part of said spin injection part is less than 2.

Claim 14 (Previously Presented): The spin injection magnetic apparatus as set forth in claim 8 or claim 9, characterized in that said spin injection part is word line.

Claim 15 (Currently Amended): A spin injection device comprising ~~characterized in that~~:

~~in a spin injection device~~ a spin injection part having a spin polarization part including a ferromagnetic fixed layer and an injection junction part of a nonmagnetic layer, ~~and~~

a ferromagnetic free layer provided in contact with said spin injection part, and

a nonmagnetic layer provided on the surface of said ferromagnetic free layer, wherein:

said nonmagnetic layer of the injection junction part is made of an insulator or a conductor, ~~a nonmagnetic layer is provided on the surface of said ferromagnetic free layer,~~ and

the magnetization of said ferromagnetic free layer is reversed by flowing electric current between the spin polarization part and said nonmagnetic layer provided on the surface of said ferromagnetic free layer in the direction perpendicular to the film surface without applying an external magnetic field.

~~an electric current flows in the direction perpendicular to the film surface of said spin injection device in order to reverse a magnetization of said ferromagnetic free layer.~~

Claim 16 (Original): The spin injection device as set forth in claim 15, characterized in that said ferromagnetic free layer is made of Co or Co alloy, a nonmagnetic layer provided on the surface of said ferromagnetic free layer is a Ru layer, and its film thickness is 0.1 - 20 nm.

Claim 17 (Currently Amended): A spin injection device, comprising: ~~characterized in that:~~

~~in a spin injection device comprising~~ a spin injection part having a spin polarization part including a ferromagnetic fixed layer and an injection junction part of a nonmagnetic layer, and

a ferromagnetic free layer provided in contact with said spin injection part, and

a nonmagnetic layer and a ferromagnetic fixed layer provided on teh surface of said ferromagnetic free layer, wherein:

said nonmagnetic layer of the injection junction part is made of an insulator or a conductor,

the magnetization of said ferromagnetic free layer is reversed by flowing electric current between the spin polarization part and the ferromagnetic fixed layer provided on the surface of said ferromagnetic free layer in the direction perpendicular to the film surface without applying external magnetic field

~~a nonmagnetic and a ferromagnetic layers are provided on the surface of said ferromagnetic free layer, and~~

~~an electric current flows in the direction perpendicular to the film surface of said spin injection device in order to reverse a magnetization of said ferromagnetic free layer~~.

Claim 18 (Original): The spin injection device as set forth in claim 17, characterized in that said ferromagnetic free layer and said ferromagnetic layer are made of Co or Co alloy, a nonmagnetic layer provided on the surface of said ferromagnetic free layer is a Ru layer, and its film thickness is 2 - 20 nm.

Claim 19 (Previously Presented): A spin injection magnetic apparatus, characterized in that it uses the spin injection device as set forth in any one of said claims 15 - 18.

Claim 20 (Previously Presented): A spin injection magnetic memory device, characterized in that it uses the spin injection device as set forth in any one of said claims 15 - 18.

Claims 21-50 (Canceled)